
Introduction

1. The DaVinci Datalogger IIoT system is designed to collect and record events from sensors. The main objective is to expand scanning coverage at assembly stations on production lines.
2. The hardware has a unique programming and interface for the integration of sensors according to demand, being managed through a webservice for the distinction and selection of which sensors will be enabled, parameters of limits for collecting the log, as well as basic setup of identification as "local", "line", etc, by the device serial.
3. The operation of the system depends on the correct integration between the Hardware (datalogger) and the Software (webservice). When the hardware starts up, it connects to the network via WiFi (2.4GHz) and searches the system's API for the settings determined to continue its setup.

Each device has a serial (unique) in its memory, which operates as a relationship key in the databases, linking the logs to locations, assembly stations, areas, and a specific function.



Product Specifications

Product Nams	DataLogger IIoT
Input	127v~220v AC
Colour	Gray
Size	10cmx6.6cmx4.0cm
Wight	
Material	ABS

Installation Requirements

- Mains 127v~220v AC.
- WebService installed and configured.
- Access to WiFi 2.4Ghz with a minimum power of -77 dbm, on a network that has access to the application's WebService.

Electrical power cable

Cable in NBR 14136 standard for AC 120~230v connection.

1 Led Online

Indicates that it is connected to the 2.4GHz WiFi network according to the setup performed in AP mode. It will also light up if you have the AP mode enabled, but in that case the display will keep showing only the DaVinci logo.

2 Led Data

Flashes green whenever a record is successfully saved. Note that the led will only flash when receiving the “200 – OK” or “204 – No Content” response from the server, indicating the event was registered, therefore it should not be used as an indicator of the existence or not of a signal in the IO ports.

3 Display

The display will show the basic information regarding the registration in the system for that device. Device identification information is critical to understanding the generated data, and each saved record has these values as well.

The first line of the display shows the SERIAL of the device. This value is the unique identification of a DataLogger.

The second line will bring LOCAL – POSTO – SIDE identification information registered in the web interface for the indicated serial. This way we can visually guarantee that the information is being registered according to the place where it is installed.



4 RFiD Connector

Connector for connecting a 13MHz RC522 antenna. Simply connect the antenna leads to the ports indicated by the DataLogger legend. It is necessary to initialize the device with the antenna properly connected. If it is necessary to remove and/or reconnect the antenna, the device must be rebooted.

Whenever the antenna recognizes the approach of a valid RFID tag, the DataLogger will record the tag reading in HEX format.

First Setup

The application setup must be done initially on the device to configure the WiFi credentials and the application host. In the sequence, the other parameters will be indicated directly in the web interface.

WiFi and Hostserver setup

The DataLogger device stores the credentials of the WiFi network where it must connect for communication with the application host, which also needs to be indicated to the DataLogger. To configure this information, it will be necessary to use an external device with WiFi communication to access the DataLogger by proximity (a notebook, cell phone, tablet...).

The DataLogger starts up immediately when powered, and if it cannot access the WiFi or the server host, the device becomes an Access Point that will provide the SSID “DaVinci – 00000” where the numbers “00000” are unique for each device. Using another device, access the network that was created by the DataLogger, and through a browser go to the address “**192.168.4.1**” to view the page below:



The screenshot shows the web interface of the DaVinci Datalogger IoT. At the top, there is a dark blue header with the text "DaVinci Datalogger IoT" in white. Below the header, there is a form with several input fields and a Submit button. The fields are labeled as follows: SSID (with placeholder text "yourSSID"), Password (with placeholder text "yourPassword"), IP Address (with a note "(leave as 0 to enable DHCP)" and placeholder text "0.0.0.0"), Gateway Address (with placeholder text "0.0.0.0"), BaseURL (with placeholder text "domain.site.flextronics.com"), and ServerPort (with placeholder text "80"). Below the fields is a Submit button. At the bottom of the form, there is a line for "Chip ID: 14176404" and a line for "MacAddress: 0C:B8:15:D8:50:94".

On this screen, fill in the fields with the SSID/Password information for the available WiFi network. If you need to use a static IP, fill in the appropriate fields or leave it as 0.0.0.0 (ip and gateway) for operation in DHCP mode. In the BaseURL field, type the base address of the webservice and its respective port in ServerPort. The local IT may request the **MacAddress** for authentication of the DataLogger on the network, and for that it will be enough to provide the code indicated in the last line of the page.

At the end of filling, just click on Submit for the device to restart and connect to WiFi if available. The entered credentials are saved in the DataLogger indefinitely, regardless of power supply.

After the device connects in the WiFi network, it allows the visualization of its status, by accessing its IP in a WebBrowser. It shows informations about the device's location, number of logs collected, and other infos



Host Application

All data generated by the devices is sent to the database through the application's webservice.

It is a REST API developed in C# language in **.NET Framework 4.6**, and makes use of **Entity Framework 6** ORM for data persistence.

In addition to the API, the project contains a Front-End developed in the **Vue.Js** framework, using Vuetify as a component library. This Front-End is served together with the Back-End application.

FCC Caution:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.